(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 22 January 2004 (22,01,2004)

(10) International Publication Number WO 2004/007533 A1

(51) International Patent Classification7: 14/75, C12N 9/68, 9/10

C07K 1/22,

(74) Agent: FRANK B. DEHN & CO.; 179 Queen Victoria

(21) International Application Number:

PCT/GB2003/002928

(22) International Filing Date:

7 July 2003 (07.07.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0216001.8

10 July 2002 (10.07.2002)

- (71) Applicant (for all designated States except US): NA-TIONAL BLOOD AUTHORITY [GB/GB]; Oak House, Reeds Crescent, Watford, Hertfordshire WD1 1QH (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KINGSLAND, Sarah [GB/GB]; Bio Products Laboratory, Dagger Lane, Elstree, Hertfordshire WD6 3BX (GB). CLEMMITT, Robert [GB/GB]; Bio Products Laboratory, Dagger Lane, Elstree, Hertfordshire WD6 3BX (GB). EVANS, David [GB/GB]; Bio Products Laboratory, Dagger Lane, Elstree, Hertfordshire WD6 3BX (GB). FELDMAN, Peter [GB/GB]; Bio Products Laboratory, Dagger Lane, Elstree, Hertfordshire WD6 3BX (GB).

- Street, London EC4V 4EL (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR); OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESSES FOR THE PREPARATION OF FIBRINOGEN

(57) Abstract: The use of immobilised metal ion affinity chromatography for the separation of fibrinogen from plasminogen, for the purification of fibrinogen and at least one other protein, for example plasminogen, and for the co-purification of fibrinogen and factor XIII.



A. CLASSIFICATION OF SUBJECT MATTER IPC 7 CO7K1/22 CO7K C07K14/75 C12N9/68 C12N9/10 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) CO7K C12N IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, PAJ, BIOSIS, MEDLINE, INSPEC, WPI Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Category ° Citation of document, with indication, where appropriate, of the relevant passages X PATENT ABSTRACTS OF JAPAN 1-20 vol. 014, no. 470 (C-0769) 15 October 1990 (1990-10-15) & JP 02 193913 A (DENKI KAGAKU KOGYO KK), 31 July 1990 (1990-07-31) abstract MILLIPORE PRODUCT CATALOGUE - PRODUCT 1-20 χ CATEGORY PROSEP CHROMATOGRAPHY MEDIA, 'Online! 1999, pages 1-2, XP002256821 Retrieved from the Internet: <URL:http://www.millipore.com/catalogue.nf</pre> s/docs/C7842> 'retrieved on 2003-10-07! section headed "Prosep Chelating I, II and III Further documents are listed in the continuation of box C. " Pätent family members are listed in annex. Special categories of cited documents: "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance Invention "E" earlier document but published on or after the International "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "O" document referring to an oral disclosure, use, exhibition or document published prior to the international, thing date but, later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 7 October 2003 22/10/2003 Name and mailing address of the ISA Authorized officer European Palent Office, P.B. 5818 Patentilaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3018

Thiele, U



Internation No-PCT/GB 03/02928

		PC1/GB 03/02928	
C.(Continua Category •	ation) DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
Category	Chability accommon, with indicates in the case of the control of t		
X	PARAMESWARAN R ET AL: "Spontaneous intracranial bleeding in two patients with congenital afibrinogenaemia and the role of replacement therapy." HAEMOPHILIA: THE OFFICIAL JOURNAL OF THE WORLD FEDERATION OF HEMOPHILIA. ENGLAND NOV 2000, vol. 6, no. 6, November 2000 (2000–11), pages 705–708, XP002256822 ISSN: 1351–8216-page 707, paragraph bridging 1. h. and r. h. col.; Table 3		
X	DATABASE WPI Section Ch, Week 199612 Derwent Publications Ltd., London, GB; Class B04, AN 1996-112641 XP002256824 & JP 08 012586 A (MIKIMOTO SEIYAKU KK), 16 January 1996 (1996-01-16) abstract	11-20	
A	WO 90 12803 A (BIOGEN INC) 1 November 1990 (1990-11-01) cited in the application page 20, line 30 -page 21		
A	HARI P R ET AL: "Adsorption of human IgG on Cu2+-immobilized cellulose affinity membrane: Preliminary study" JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, vol. 50, no. 2, May 2000 (2000-05), pages 110-113, XP002256823 ISSN: 0021-9304 the whole document; in particular, page 112, r. h. col., paragraph 1		
A .	DATABASE WPI Section Ch, Week 199709 Derwent Publications Ltd., London, GB; Class B04, AN 1997-095485 XP002256825 & JP 08 333387 A (MITSUBISHI MATERIALS CORP), 17 December 1996 (1996-12-17) abstract		



in matter on patent family members

Internal Application Non-PCT/GB 03/02928

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
JP 02193913	A	31-07-1990	NONE		
JP 8012586	A	16-01-1996	NONE		
WO 9012803	Α	01-11-1990	US	5169936 A	08-12-1992
			AU	5545790 A	16-11-1990
			EP	0467992 A1	29-01-1992
			JP	4504720 T	20-08-1992
			WO	9012803 A1	01-11-1990